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10/046,283	01/16/2002	Hun Gun Park	RPL-0026	2369
34610	7590	02/18/2005	EXAMINER	
FLESHNER & KIM, LLP P.O. BOX 221200 CHANTILLY, VA 20153			LEFLORE, LAUREL E	
			ART UNIT	PAPER NUMBER
			2673	

DATE MAILED: 02/18/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/046,283

Applicant(s)

PARK, HUN GUN

Examiner

Laurel E LeFlore

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 04 October 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-17, 19 and 20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-9 is/are allowed.
- 6) ☒ Claim(s) 10-17, 19 and 20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 January 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 10, 11 and 14-17 are rejected under 35 U.S.C. 102(e) as being anticipated by Nagano 6,531,994 B1.

3. In regard to claim 10, Nagano discloses in his “method of driving AC-type plasma display panel and plasma display device “ (title), a method of driving a PDP (Plasma Display Panel), comprising: applying a first scan pulse to scan electrodes, wherein each of the scan electrodes are numbered from 1 to N, and wherein the first scan pulse is applied to the scan electrodes in ascending number order from 1 to N; and applying a second scan pulse to the scan electrodes in descending number order from N to 1. See column 13, lines 5-9, disclosing, “in the writing period ADP of the first half of the sub-field,...the odd-numbered scanning lines S.sub.2n-1 are selected in descending order...up to the scanning line S.sub.1”. Further see column 13, lines 19-28, disclosing, “After the end of the driving sequence in the first half of the sub-field, the driving sequence in the latter half of the sub-field is performed...the even-number scanning

lines S are selected in ascending order, i.e., in the order of the scanning line S.sub.2, the scanning line S.sub.4,...and the scanning line S.sub.2N."

Nagano further that the first scan pulse is applied to scan electrodes in ascending number order from 1 to  $N/2$  and from  $N/2$  to N and the second scan pulse is applied in descending number order from N to  $N/2$  and from  $N/2$  to 1. Applying the first scan pulse in ascending number order from 1 to N inherently entails applying the first scan pulse from 1 to  $N/2$  and from  $N/2$  to N, since  $N/2$  is midway between 1 and N. Also, applying the second scan pulse from N to 1 inherently entails applying the second scan pulse in descending number order from N to  $N/2$  and from  $N/2$  to 1, since  $N/2$  is midway between N and 1.

4. In regard to claim 11, Nagano discloses that the charged particles generated by the first and second scan pulses are opposed to each other. Nagano discloses this problem of excess charged particles, calling it "unnecessary charge", in column 16, lines 39-48. Nagano further discloses in column 18, lines 59-62, that voltages in the odd and even writing periods (Scan pulse is applied during the writing period; See rejection of claim 1.) "are reverse in polarity to each other when the writing discharge is generated." This opposition of charged particles inherently reduces the amount of excess charged particles residually.

5. In regard to claims 14 and 15, Nagano discloses that the first scan pulse comprises multiple odd-numbered pulses and the second scan pulse comprises multiple even-numbered pulses. See column 13, lines 13-18, disclosing that the sustain period is executed on the scan lines to generate the sustain discharge. "Specifically, the

sustain pulse is alternately applied between the sustain discharge electrodes X and Y or an AC pulse is applied to the sustain discharge electrodes X and Y.” While it does not specifically disclose odd- or even-numbered pulses, it is understood that the multiple pulses, as described, can be seen as a series of one pulses or a series of two pulses and will thus read on the claim language of “comprising”.

6. In regard to claims 16 and 17, Nagano discloses that the first scan pulses occur in odd numbered sub-fields and the second scan pulses occur in even numbered sub-fields of a fields. See rejection of claim 10, in which Nagano discloses sub-fields. It is understood that if the sub-fields are numbered 1 to n, that the first scan pulse would occur in sub-field number one, one being an odd number, and the second scan pulse would occur in sub-field number two, two being an even number.

***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nagano 6,531,994 B1 in view of Awamoto 6,469,514 B2.

9. In regard to claim 19, Nagano discloses in his “method of driving AC-type plasma display panel and plasma display device “ (title), a method of driving a PDP (Plasma Display Panel), comprising: applying a first scan pulse to scan electrodes, wherein each of the scan electrodes are numbered from 1 to N, and wherein the first scan pulse is

applied to the scan electrodes in ascending number order from 1 to N; and applying a second scan pulse to the scan electrodes in descending number order from N to 1. See column 13, lines 5-9, disclosing, "in the writing period ADP of the first half of the sub-field,...the odd-numbered scanning lines S.sub.2n-1 are selected in descending order...up to the scanning line S.sub.1". Further see column 13, lines 19-28, disclosing, "After the end of the driving sequence in the first half of the sub-field, the driving sequence in the latter half of the sub-field is performed...the even-number scanning lines S are selected in ascending order, i.e., in the order of the scanning line S.sub.2, the scanning line S.sub.4,...and the scanning line S.sub.2N."

Nagano does not disclose that the first scan pulse is applied to scan electrodes from 1 to N/2 and from N to N/2 and the second scan pulse is applied from N/2 to 1 and from N/2 to N.

Awamoto discloses a driving method for a plasma display panel in which scan drivers drive scan electrodes in groups of N/2. See column 10, lines 16-19, disclosing, "The total N of scanning drivers 781 include a first group for controlling the second electrodes Y.sub.1 -Y.sub.n/2 and a second group for controlling the second electrodes Y.sub.(n/2)+1 -Y.sub.n."

Awamoto further teaches in column 4, line 63 to column 5, line 4, "The conventional scanning circuit 780 includes plural scanning drivers 781 for binary control of the potential of each of the n second electrodes Y, and two switches (switching devices such as FETs) Q50, Q60 for switching the voltage that is applied to the scanning drivers. Each scanning driver 781 is an integrated circuit device, which is in

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charge of controlling the  $j$  second electrodes Y. In a typical and available scanning driver 781,  $j$  is approximately 60-120."

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the inventions of Nagano, in which the scan pulse can be applied from 1 to N or from N to 1, and Awamoto, in which the scan pulse can be applied to a group of  $N/2$  scan electrodes, thus having an invention in which the first scan pulse is applied to scan electrodes from 1 to  $N/2$  and from  $N/2$  to N and the second scan pulse is applied from  $N/2$  to 1 and from N to  $N/2$  or in which the first scan pulse is applied to scan electrodes from 1 to  $N/2$  and from N to  $N/2$  and the second scan pulse is applied from  $N/2$  to 1 and from  $N/2$  to N. Note that with such a combination the first  $N/2$  scan electrodes (1 to  $N/2$ ) of Awamoto would be driven first from 1 to  $N/2$  and second from  $N/2$  to N, while the second  $N/2$  scan electrodes ( $N/2$  to N) would be driven first from  $N/2$  to N and second from N to  $N/2$ . One would have been motivated to combine the inventions since both are methods of driving a plasma display panel and further both are methods of driving the scan electrodes 1 to N and since Awamoto teaches that such a configuration of scan-driver circuits is conventional.

10. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nagano 6,531,994 B1 in view of the Journal of Applied Physics article, "Global breakdown in an alternating current plasma display panel" by Ikeda et al.

In regard to claim 12, Nagano discloses an invention similar to that which is disclosed in claim 12. See 102 rejection of claim 11 for similarities. Nagano does not

disclose that the reduction of excess charged particles prevents abnormal discharge or dielectric breakdown.

Ikeda discloses that "undesirable discharge is referred to as global breakdown". Ikeda further discloses that "Global breakdown was accompanied by charge separation...caused by electron transport...The electron transport formed a negative wall charge...When the wall voltage exceeded the insulation voltage of the protective layer, global breakdown occurred." Thus, Ikeda teaches that global (dielectric) breakdown occurs as a result of excess charged particles.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the invention of Nagano with the teaching of Ikeda, thus having the reduction of excess charged particles prevent dielectric breakdown. One would have been motivated to make such a change based on the teaching of Ikeda that excess charged particles cause dielectric breakdown.

11. Claims 13 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nagano 6,531,994 B1 in view of Alymov et al. 6,587,084 B1.

12. In regard to claim 13, Nagano discloses an invention similar to that which is disclosed in claim 13 of the immediate invention. See rejection of claim 10 for similarities. Nagano does not disclose that N, the number of scan electrodes, is 480. Nagano is silent on the point.

Alymov discloses an invention in which the number of scan electrodes is 480 in column 6, lines 50-51, "in accordance with the embodiment of the present invention, in



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case of S=480". Alymov further teaches a common and conventional format having 480 scan lines in column 1, line 53, "In NTSC system having 480 scan lines".

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the invention of Nagano by having 480 scan electrodes, as in the invention of Alymov. One would have been motivated to make such a change in order to display the picture in an NTSC system, as taught by Alymov. Also, it is common and conventional in plasma displays to have 480 scan lines, as an NTSC system is a common class of display. Further, the number of scan lines, or electrodes, is a matter of routine design choice.

13. In regard to claim 20, Nagano discloses an invention similar to that which is disclosed in claim 20. See rejection of claim 10 for similarities. Nagano does not disclose that applying the first scan pulse to the scan electrodes from 1 to N occurs in 16.67 msec. Nagano is silent on the point.

Alymov et al. discloses in column 1, lines 50-53, "For example, in order to prevent users from feeling flickers on the screen, the time for controlling illumination of one frame should be limited about 1/60 sec or less, namely 16.67 ms."

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the invention of Nagano by applying the scan pulse to the scan electrodes from 1 to N in 16.67 msec., as in the invention of Alymov et al. One would have been motivated to make such a change based on the teaching of Alymov et al. that such a time of illumination of one frame will prevent users from feeling flickers on the screen.

***Allowable Subject Matter***

14. Claims 1-9 are allowed.

***Response to Arguments***

1. Applicant's remarks regarding the 35 USC 112, first paragraph, rejection of claims 1-20 are persuasive. The 35 USC 112, first paragraph, rejection of Paper Nos. 3 and 5 is withdrawn.
2. Applicant's arguments filed 25 May 2004 have been fully considered but they are not persuasive.
3. Applicant's remarks regarding the previous rejection of claims 18 and 19 are not persuasive. Please note that as the Ide reference is no longer being used in the rejections of claim 19, such arguments are further moot. However, in response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, as stated on page 12 in the applicant's remarks of Paper No. 6, the examiner finds a motivation to combine the features of Nagano and Ide since both references relate to methods of driving a plasma display panel and further that both references relate to methods of driving scan electrodes 1 to N.

Further, the test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981).

15. Applicant's arguments, see pages 1-2, filed 4 October 2004, with respect to the rejection(s) of claim(s) 10, 11, 14-17 and 19 under 35 USC 103 have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of a newly found prior art reference.

16. Applicant's arguments and provision of a sworn translation of the foreign priority documents of the immediate application are sufficient to overcome the use of Ide as prior art. However, new art has been used. See above rejection of claim 19.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Laurel E LeFlore whose telephone number is (703) 305-8627. The examiner can normally be reached on Monday-Friday 8-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bipin Shalwala can be reached on (703) 305-4938. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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LEL

16 December 2004



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